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Contents

General Articles :

Respiratory Diseases of the Fowl 683
J. E. Wilson, B.SC., M.R.C.V.S., F.R.S.E.

Further Experiments on the Treatment of Tick Pyaemia of Lambs with Antibiotics... 690
A. Foggie, B.SC., PH.D., M.R.C.V.S.

Husk in Cattle : Discussion... 692
Opener : J. W. Bruford, M.R.C.V.S.

In Parliament 695

Dr. J. Russell Greig, C.B.E. ... 696

University of Bristol : First Conferment of Veterinary Degrees 698

News and Comment 700

Correspondence :

A Legitimate Grievance... ... 702
M. Watson, M.R.C.V.S.
F. B. Halpin, M.R.C.V.S.
A. D. A. Isherwood, M.R.C.V.S.

Respiratory Diseases of the Fowl

A Paper read in Paris under the auspices of the Food & Agriculture Organisation

by

J. E. WILSON

Lasswade

ALL who have had experience of poultry diseases in the field and in the *post-mortem* room are well aware of the difficulties of diagnosis of diseases of the respiratory system. Symptoms are confusing as many are common to several diseases and they may vary greatly in severity. The difficulty of diagnosis is increased when carcases alone are available, often unaccompanied by a history of any kind. The position is still further aggravated by the possibility that more than one respiratory disease may be present.

Recourse to specialised laboratory techniques is often necessary for an accurate diagnosis. These techniques are often time consuming, and involve the inoculation of fertile eggs or stock of a suitable age and their retention for a varying period of observation. The resultant delay, the reason or necessity for which is not always understood, is a source of annoyance to the owner.

The time at our disposal may perhaps best be utilised by providing a complete list of the conditions which may give rise to respiratory symptoms, briefly describing those of lesser importance inasmuch as they are not primarily true respiratory diseases as generally understood by the term, and discussing in greater detail those which are responsible for serious losses.

Before proceeding further, however, it may be profitable at this stage to consider the subject from a more general angle and deal with certain predisposing factors which are of importance in this group of diseases. In fact in considering many outbreaks the conclusion is often reached that some environmental factor such as defective nutrition or faulty methods of husbandry, or a combination of both, is of greater importance in precipitating an outbreak than the presence of the infective agent itself.

The ill-nourished bird falls a ready victim to disease. Overcrowding is an important factor; the overcrowded bird is often underfed due to lack of adequate trough space and there is a rapid build-up of infection frequently resulting in an increased virulence of the causative organism.

Ventilation plays an important part in the incidence of respiratory diseases and here again overcrowding may be an accessory factor. The cubic air space and air inlets may be adequate for the intended complement of the hen house but may be insufficient for an increased population. Thus "colds" commonly occur in night arks into which birds, especially growing stock, may crowd, leaving adjacent ones half empty. When the birds are placed further apart, allowing an even distribution, respiratory symptoms often disappear. Underventilation is generally more serious than overventilation, birds being more susceptible to respiratory diseases in a hot, stuffy atmosphere than in a cool airy one. There is probably greater risk in birds kept intensively, especially in large groups, for example under the conditions commonly used for broiler production in Canada and the U.S.A.

Generally speaking respiratory disease is less common in birds kept extensively in smaller groups, some distance apart, where, if an outbreak occurs it can be more readily brought under control. Under modern conditions with prevailing high costs, particularly of labour, it is not always practicable to keep birds under what might be considered ideal conditions, and units to be economic tend to become larger and more contiguous. Under these conditions the risk of dissemination of disease becomes increasingly greater and the importance of the closest observation of the principles of hygiene and sanitation can scarcely be overstressed.

Diseases which may give rise to respiratory symptoms include:—

Vitamin A deficiency; Gapes (Syngamus trachea); Air sac mite infection (Cytoleichus nudus); Bacillary White Diarrhoea (Pullorum disease); Aspergillosis; Fowl Cholera; Streptococcosis; Lymphomatosis (Fowl paralysis); Fowl Pox; Coryza; Chronic Respiratory Disease (C.R.D.); Infectious sinusitis of turkeys; Infectious Laryngo-Tracheitis; Infectious Bronchitis; and Newcastle Disease.

Vitamin A Deficiency (Nutritional Roup)

This disease, the result of feeding a deficient diet, can occur in growing chicks and in adult stock. In early cases there is a thin, clear sticky discharge which later becomes viscid tending to gum up the eyelids and block the nostrils. As a result the exudate accumulates at these sites causing a varying degree of swelling of the face. It can still be expressed from the nostrils by pressure over the swollen face by the fingers, but later it solidifies into a white caseous-like mass which can be readily shelled out from under the eyelids or from the swollen sinuses if these are opened. The characteristic whitish colour of the material is almost diagnostic, but further confirmation may often be obtained by the presence of yellowish grey discrete necrotic lesions in the pharynx and upper oesophagus. Leg weakness may also occur in growing stock.

Recovery usually takes place when the deficiency is rectified by the addition of codliver oil, yellow maize and green food.

Gapes (Syngamus Trachea)

Infestation with *Syngamus trachea* may give rise to difficulty in respiration and cause mouth breathing, "gaping" or gasping, shaking of the head and coughing. Nowadays under modern systems of intensive rearing, gape-worms are seldom seen in chicks but outbreaks are still met with in pheasants and turkeys.

Control consists in providing separate rearing grounds for young stock. Sandy soil is ideal as it is unfavourable for earth worms which, as mechanical carriers, may play an important part in the spread of the disease.

Exposure to barium antimonyl tartrate, blown into an enclosed space by a dust gun is an effective treatment. If the chicks are placed in a box which is tilted backwards and forwards to cause them to flutter about, the powder is stirred up and more ready inhalation results.

Air Sac Mite Infection (Cytoleichus Nudus)

The mite *Cytoleichus nudus* is sometimes found in the air sacs, bronchi and lungs of chickens, but, unless present in very large numbers, it is unlikely that symptoms of respiratory distress will be caused. The possibility of such infection should, however, always be kept in mind. The mites are most readily seen when the carcase is opened up for *post-mortem* examination as minute white specks moving over the surface of the air sacs.

Bacillary White Diarrhoea (Pullorum Disease)

Chicks affected with this disease may show difficult respiration. At autopsy there may be evidence of pneumonia or greyish yellow nodules varying in size from a pin head to much larger in one or both lungs. Similar nodules may occur in the myocardium or the musculature of the gizzard. A bacteriological examination is necessary for a definite diagnosis.

Aspergillosis

This disease, caused by Aspergillus species frequently *Aspergillus fumigatus* is not uncommon in young chicks. It is sometimes attributable to the use of dusty or mouldy hay as a packing for chick boxes, the close confinement of the chicks during transit being an important predisposing factor. The disease can occur in birds of all ages, but actual outbreaks are rarer in adult birds, when the use of mouldy grain is sometimes a cause.

The presence of "colds" appears to render birds more susceptible to the disease, the sticky nasal discharge acting as a trap for mould spores and providing a good medium for their growth.

Post-mortem findings in chicks are not unlike those associated with *S. pullorum* infection. Similar nodules occur in the lungs but the absence of necrotic lesions elsewhere and the presence of exudate in the air sacs in aspergillosis provides a rough method of differential diagnosis. A bacteriological examination is necessary for accurate differentiation.

No medicinal treatment has been shown to be of value.

Fowl Cholera (P. Avisepticus)

Respiratory symptoms are sometimes seen in acute fowl cholera and *P. avisepticus* may be isolated from the lungs, liver and blood.

Occasionally an odd bird in an apparently healthy flock may show difficult breathing and a quantity of yellow caseous material may be seen partially occluding the larynx. A bird may be received for autopsy with a history of sudden death in which a plug of similar material may have caused asphyxia. Frequently *P. avisepticus* is isolated from the solidified exudate in such cases, in which it appears to represent a localised infection.

Streptococcosis

In some outbreaks of streptococcosis in poultry associated with infection with *S. zooepidemicus* or *S. gallinarum* respiratory symptoms are seen, but more often symptoms are inappetence followed by listlessness, prostration and death. Diagnosis is by bacteriological examination. Control measures include the usual hygienic precautions. Sulphonamides and antibiotics have been suggested for medicinal treatment.

Lymphomatosis (Fowl Paralysis)

In some cases of fowl paralysis where the vagus nerve or the intercostal nerves are involved, or where there is diffuse lymphoid infiltration or actual tumour formation of the lungs, a rather characteristic type of mouth breathing is seen. This differs in intensity to that usually seen in most of the respiratory diseases and is perhaps better described as gaping than gasping. Coughing rarely occurs and there is an absence of ocular or nasal discharges. The enlarged diseased nerves are readily demonstrated at autopsy.

Fowl Pox

The symptoms of the oculo-nasal type of fowl pox are indistinguishable from those of coryza and of the milder forms of some of the more severe respiratory diseases, but a differential diagnosis is usually possible in most outbreaks by examining the remainder of the affected group, some of which will probably show the typical diphtheritic mouth lesions or the very characteristic pox lesions affecting the comb and wattles, eyelids and face.

Yellowish deposits are sometimes present in the mouth and pharynx of birds affected with coryza but they are readily detached from the underlying mucous membrane whereas in fowl pox the deposits are more tenacious and when removed leave a raw bleeding area underneath.

It is usually best to destroy badly affected birds as soon as a diagnosis has been obtained, and carry out disinfection. It may be considered desirable to vaccinate susceptible stock. On farms where there is a history of regular recurrence of the disease, vaccination should be carried out as a routine procedure. In Britain a vaccine prepared from pigeon pox virus is most commonly used (Doyle, 1930). It is applied by pulling out about 12 to 14 feathers from the skin of the leg just above the hock and brushing the vaccine into the feather follicles. There is little systemic disturbance and there is the added advantage that only a part of the flock need be done. The immunity is temporary, lasting for three to four months.

In America modified fowl pox virus is used and with this procedure greater care is necessary. Vaccination of this type should not be done as a routine preventive measure unless previous history indicates the likelihood of a seasonal attack or there is a serious risk of dissemination of the disease from neighbouring flocks. Vaccination can be applied by either the " stick " or " stab " method into the skin of the leg or the web of the wing, or by the follicle method already described.

It is important that only healthy chicks are vaccinated. If the operation coincides with the onset of an outbreak of coccidiosis the results may be disastrous.

Infectious Coryza

In the past there has been considerable confusion over the classification of types of infectious coryza and although the subject has been clarified by the work of de Blieck (1931, 1932, 1948) and Nelson (1933, 1936), it still presents difficulties. A number of recent papers from America on chronic respiratory disease (C.R.D.) have provided information on this complex problem and emphasised the need for further research. It will perhaps be easier to deal first with the types most commonly seen in Britain and describe the American findings separately.

The simplest form of disease is that caused by Haemophilus gallinarum (de Blieck, 1931). Here the incubation period is about one to three days and the duration of illness is never more than about a month at the most; more often it clears up in about a fortnight.

Nelson (1936) described this type of disease and also another characterised by a longer incubation period (9 to 36 days) and a longer duration (up to 19 months). He described coccobacilliform bodies as the cause. Later research has shown these to be identical with the pleuro-pneumonia-like organism (PPLO) in chronic respiratory disease (C.R.D.) described by several workers.

Nelson also described a third type of coryza where a combination of *H. gallinarum* and coccobacilliform bodies was present. This had a short incubation period and a long duration.

The symptoms are too well known to need description. There is a serous discharge from the eyes and nostrils. This quickly becomes viscid and in many cases through blocking of the nostrils exudate accumulates in the infra orbital and frontal sinuses, causing swelling of the face. There may be deposits of yellowish material in the mouth and pharynx but these are easily removed (c.f. fowl pox). Sometimes the tip of the tongue becomes dry, resulting in a condition alluded to by poultry farmers as " Pip." There is loss of appetite, coughing, sneezing, fall in egg production and impaired growth in younger birds. Mortality is not usually high; the

most serious effects of the disease are unthriftiness in growing birds, and the loss of egg production in older stock.

Treatment

It has been seen that predisposing factors are often of greater importance than the actual infective agent. Environmental factors should be considered and any faults in hygiene and husbandry rectified. Ventilation is of primary importance. Under-ventilation is more likely to have caused the trouble than over-ventilation, particularly if overcrowding is also present.

Coryza caused by *H. gallinarum* responds very quickly to treatment with sulphonamides. Sulphathiazole is most commonly used but sulphamezathine also gives good results. The former is commonly given as a 0.125 per cent. solution and the latter as a 0.2 per cent. solution in lieu of drinking water. Treatment should be continued for three to five days; a second course is often necessary.

Chronic Respiratory Disease (C.R.D. or Air Sac Infection)

This condition represents one of the most serious menaces to the poultry industry in certain areas of America and is of particular importance to the broiler industry. It is considered to be of greater economic importance than either Newcastle disease or infectious bronchitis. Although the death rate is not always high there is a high morbidity rate. There is poor fleshing, resulting in the production of many culls and the food conversion rate is lowered. All these factors are serious when the scale of operations on the average broiler plant is considered. It has been estimated by McDowell (1952) that out of the 167,000,000 broilers produced in Delmarva in 1951, the overall loss from air sac infection was 6 per cent. above normal or over 10,000,000 birds. From another source comes the statement that in a few months in the same area C.R.D. caused a loss of 20 million dollars. The magnitude of the problem is obvious.

Numerous conferences were held in 1952 and a co-operative programme involving seven experimental stations was developed. Much interesting data has been accumulated concerning the nature of the causative agent, its method of spread, and its relationship with infectious sinusitis of turkeys, but up to the present no adequate measures for the control of the disease are known.

Air sac infections have been recognised for many years, but according to Jungherr & Luginbuhl (1952) the term "air sac infection" first became prominent about 1947 when poorly finished broilers were found to have thickened air sac walls and a thick yellow exudate over the internal organs.

The symptoms, which include coughing and sneezing, are clinically indistinguishable from Newcastle disease or infectious bronchitis, except for a slower rate of spread and a longer persistence in the flock. Mortality may reach 50 per cent. although it is often much lower. The onset of egg production is delayed and in affected adult birds there is a very marked decline.

Post-mortem findings include a thickening of the walls of the air sacs, which may contain a thickish yellow tenacious deposit which may also cover the heart, liver and lungs. There may be tracheitis, and plugs of caseous material are sometimes seen in the bronchi below the bifurcation of the trachea.

Etiology

The present concept of causation is that there are at least two agents responsible. Firstly the coccobacilliform body previously described by Nelson (1936) which is now considered to belong to the Pleuro-pneumonia-like organisms (PPLO) and secondly a virus, probably identical to that present in turkey sinusitis—PPLOs are also present in this disease (Delaplane & Stuart 1943; Minard & Jungherr 1944; Hitchner 1949).

There is an extensive literature on methods of isolation of the causative organism by inoculation of egg embryos. Fabricant (1953) points out that the agent should kill 100 per cent. of five- to six-day-old chick embryos inoculated into the yolk sac. Deaths occur 4 to 15 days after inoculation. Usually two or three serial passages are required. It should not kill 9- to 10-day-old embryos when inoculated into the allantoic cavity. In only two cases out of 245 was it possible to make a positive diagnosis after one passage, 131 cases required two passages, 95 required three, and 17 required four or more. He was unable to find joint lesions described by Delaplane (1948) or the lesions in the respiratory tract described by Van Roekel & Olesiuk (1951).

The part played by predisposing factors in precipitating an outbreak of respiratory disease has already been pointed out and these are particularly important in C.R.D. The view is widely held that the organism may be present in chicks and that it requires some trigger mechanism to start an outbreak. It has been noted that many outbreaks have followed an attack of Newcastle disease, infectious bronchitis or coccidiosis, and on occasion following the operation of implanting stilboestrol. The disease has so often occurred following vaccination for Newcastle disease that many have been led to think that it is one of the chief hazards of vaccination. It has been pointed out by other workers that the disease is equally common in non-vaccinated stock.

Improper temperatures of brooding, the use of dry and dusty litter, and overcrowding are also important secondary factors.

Treatment

No specific treatment is available but it has been shown that certain antibiotics have some effect, particularly if given in the early stages of the disease. In severe outbreaks the effective levels appear to be so high as to be uneconomic. For example, aureomycin as a feed supplement was found to be effective in maintaining appetite, efficiency of food utilisation and growth at levels significantly superior to those of controls and in some cases there was a significant reduction in mortality. The effective concentration varied from 50 to 400 gms. per ton of feed depending on the time of application and the severity of the disease (White-Stevens & Zeibel 1953).

Carson, Eaton & Luginbuhl (1953) reported that

gross symptoms of the disease largely disappeared and egg production was significantly increased following the injection of affected pullets with 50 mgs. of terramycin suspended in mineral oil; but other workers report that the material is not well tolerated. Removal of all predisposing causes, improved hygiene, and partial or complete temporary depopulation are important measures in control and prevention of further outbreaks.

Infectious Sinusitis of Turkeys

This disease has been known for about 50 years but it is only recently that it has been shown that the agent responsible for C.R.D. can set up sinusitis in turkeys and that C.R.D. in chickens can be reproduced by material from infected turkeys (Van Roekel, Olesiuk & Peck 1951, 1952; Grumbles, Boney & Delaplane 1952). In addition other bacteria, including *H. gallinarum* may play a part.

Symptoms include head shaking, coughing, and sneezing, accompanied by a thinnish clear discharge from eyes and nostrils. Later this becomes viscid and accumulates in the sinuses which may be distended, sometimes to a very great extent, causing marked swelling of the face.

Treatment

Several American workers have shown that the injection of streptomycin into the distended sinus is followed by rapid regression and recovery. In stubborn cases it may be necessary to give a second or third injection. It is unnecessary to evacuate the accumulated exudate before injection. We have found that a mixed injection of streptomycin and penicillin gives excellent results (100,000 units penicillin and 100 mgms. streptomycin in 2 c.c. of water).

Treatment is an economic proposition.

Egg Transmission of C.R.D. and Turkey Sinusitis

The causative agent has been demonstrated in the eggs of affected turkeys (Jerstad & Hamilton, 1948) and on occasion, because of poor hatchability, it has become necessary for certain hatcheries to discontinue the use of eggs from infected flocks.

Pathological changes observed in unhatched embryos by Van Roekel *et al* (1951, 1952) have already been noted and it is generally accepted that the causative agent of C.R.D. may be transmitted through the egg.

Apart from the question of the introduction of disease into rearing plants the careful selection of eggs for propagation of virus vaccines or for other scientific purposes becomes a matter of primary importance.

Infectious Laryngo Tracheitis

This disease was first reported from America by May & Tittsler (1925). It was present earlier although probably not of great economic importance (Hinshaw 1931). It has been reported in Canada (Gwatkin, 1925) and in England (Dobson, 1935). It is an acute contagious respiratory disease of fowls (pheasants are also susceptible) caused by a virus.

Symptoms include difficulty in breathing, causing the bird to extend the neck and take long gasping inhalations through the open beak. There is coughing and frequent head shaking, and blood-stained mucus may be seen on the dropping boards and walls of the hen house. Death often results from asphyxia. The mortality rate may vary from 10 per cent. or less, to 70 to 80 per cent. or more.

Diagnosis

The *post-mortem* findings are often pathognomonic but sometimes it is difficult to distinguish them from those of severe coryza or fowl pox. Twelve-day-old embryos can be inoculated with a broth suspension of tracheal exudate after treatment with antibiotics. After three to four days the eggs are opened. The virus produces raised greyish yellow areas on the chorio-allantoic membrane which may show necrosis. The disease may be distinguished from fowl pox by serum neutralisation tests using embryonated eggs and by microscopic examination of the lesions produced on the membranes (Burnet, 1934).

Post-mortem Findings

The characteristic lesions are present in the trachea which is inflamed and partially or completely occluded by blood or blood tinged mucopurulent or fibrinous exudate. Sometimes plugs of yellow caseous material may be present in the larynx and smaller deposits are sometimes present in the mouth or pharynx. These are easily detached from the underlying surface.

Control

In America the disease is most prevalent in large commercial fattening plants. It would appear to be less common than formerly and this seems to be the case also in Great Britain. It is a serious disease which may spread rapidly if prompt measures are not taken at the outset. All affected birds should be killed immediately and the carcases buried or burned; it is often best to advise an owner to kill off the entire group in which sick birds are present and carry out a strict sanitation programme. In America it is sometimes necessary to carry out complete depopulation of the adult stock on infected premises.

A vaccine has been used with success. Formerly, ground-up dried tracheal exudate from natural cases was used, but later egg-propagated virus was adopted (Beaudette & Hudson, 1933; Gibbs, 1933; Brandly, 1936; and Beaudette, 1939). The vaccine is applied to the wall of the cloaca by means of a brush with very short, stiff bristles. It should be used only in flocks where the disease presents a particular problem, as the introduction of live virus may well prolong the disease on the premises or give rise to fresh outbreaks.

Infectious Bronchitis

Infectious bronchitis is an acute, highly contagious respiratory disease caused by a virus. It is of great economic importance in some parts of Canada and the U.S.A. where it causes serious mortality and impaired growth in broilers and a serious reduction in egg production when adult

stock is affected. It is considered by many to be of greater importance than Newcastle disease.

It has been seen that the symptoms in chicks are generally indistinguishable from those of Newcastle disease and C.R.D. The incubation period is short —18 to 36 hours. There is difficulty in breathing, coughing, snuffling and sneezing. If the disease is contracted at any time from three weeks of age up to about a month before coming into production, recovery takes place and a useful immunity remains, but if infection is not acquired until birds are in production the consequences are most serious. Apart from respiratory symptoms there is a marked fall in egg production. This is more persistent than in Newcastle disease and frequently as many as half the affected flock, or even more, may never return to economic egg-laying. The laying of abnormally shelled and imperfectly shaped, unmarketable eggs is a feature in recovered birds.

The virus may be demonstrated by infecting susceptible chicks, by serum neutralisation tests or by the inoculation of 9- to 10-day egg embryos in which dwarfing and curling result. There is a fairly extensive literature on the subject. (Fabricant, 1949, 1950; Cunningham, 1951, 1952; Loomis, Cunningham, Gray & Thorp, 1950), and others.

Prevention

Chicks hatched from immune hens have some parental immunity but this declines in a week or two. Such chicks may be vaccinated at two to three days by the spray technique which will be described later. The strain of virus used is the R. strain (Crawley, 1953), which is of low pathogenicity but has high immunising properties. If chicks have no parental immunity, vaccination must be deferred till they are two to three weeks old and this may be too late to be fully effective under the environmental conditions present in some broiler plants. There is, therefore, a demand by broiler producers for chicks of high parental immunity. Birds should never be vaccinated later than a month before coming into production; the disease spreads so readily and so rapidly that vaccination should never be carried out near pens containing stock of a susceptible age. Chicks which are intended as egg producers or as breeders, should be revaccinated when about 10 to 12 weeks old or up to a month before coming into lay.

The method of immunising adopted in New York State may be of interest (Levine, 1951). As a result of the observation that if the disease strikes a flock before birds come into production, relatively little damage is done, but if the flock is in full production there is serious economic loss; deliberate infection of flocks with infectious bronchitis is brought about when the birds are from 7 to 15 weeks old.

Birds representing 1 per cent. of each flock are inoculated with egg-propagated virus and reintroduced to the flock. During 1951, in the area around Ithaca, 1,128 flocks, representing over 1,000,000 birds, were treated this way.

Infection spread to 100 per cent. of the birds within three days in the case of confined birds, and in four to six days in birds on range. Inappetence lasted for two to three days, symptoms of respiratory distress persisted for two to three weeks and mortality was about 0.2 per cent. In all cases, by the end of a month, no evidence of respiratory infection was found. There is a danger of the disease spreading to groups of birds which it is not desired to infect, and even to adjacent farms, so that before the procedure is begun in any area it is insisted that 75 per cent. of the poultry farmers approve of the plan. This method has been so successful that there are no records of the disease in laying flocks in treated areas. It has the grave drawback, however, of perpetuating active disease and should never be carried out in any area in which the disease is not endemic.

Newcastle Disease

The peracute form of this disease as first described by Doyle (1927) need not be discussed here as it is well known and readily recognisable and moreover is unlikely ever to be mistaken for any form of respiratory disease. The milder type, or American type, is in a vastly different category and frequently requires recourse to various laboratory procedures for a definite diagnosis. Its less spectacular nature does not always impress the layman with its potential seriousness, and there is a greater risk of its passing unnoticed with consequent spread over a wide area.

Symptoms

In young chicks there is gasping and coughing accompanied by lassitude and loss of appetite. Birds tend to stay in the heated part of the brooder. These symptoms are usually followed by nervous complications such as twisting of the head and neck, head held in an upside down position, walking backwards, and partial or complete paralysis. In growing chicks similar respiratory symptoms are seen, usually accompanied by nervous complications. In some outbreaks the latter may be absent.

One of the characteristics of the disease is the variation in virulence in different outbreaks. Sometimes symptoms are quite severe, at other times they are so mild as to pass unnoticed by all but a careful observer. This is equally true in outbreaks affecting adult birds. In some there may be slight sneezing and coughing with very little obvious nasal discharge. Birds may be off their food for a day only. There is usually, however, even in the mildest outbreaks, a sudden drop in egg production, accompanied by the laying of soft-shelled eggs and egg membranes. In such outbreaks production may return to normal very quickly. In other outbreaks there is great respiratory distress with loud breathing, râles and coughing. Birds are depressed, lose interest in food and sit around often with their eyes shut. A proportion of the flock may show nervous symptoms such as have been described and there may be partial or complete paralysis. Egg production may cease completely within a few days. Some birds never return to full production but most resume laying at the former rate in from three to six weeks, others a little later. Shell quality, however, often remains poor, and misshapen, thin-shelled

eggs are common. It is said that eggs from a recovered flock do not keep well in storage.

Diagnosis

A definite diagnosis on clinical grounds is rarely possible, as several diseases may give rise to similar symptoms. It is somewhat easier in Britain, where laryngotracheitis is less common and infectious bronchitis is rare if existing at all; but in the U.S.A., where both may be present, C.R.D. is also common, and a field diagnosis is virtually impossible in flocks where no vaccination programme has been in force.

The history is often helpful, as an importation from known infected premises may have taken place, but it is often necessary to demonstrate virus by the inoculation of egg embryos.

In sufficiently large chicks, and in adult birds, the demonstration of haemagglutination inhibition properties in the serum of recovered birds is a method very commonly used. Alternatively virus neutralisation tests can be carried out by mixing the serum of the test bird with an equal quantity of various ten-fold dilutions of a known virus and inoculating the mixture into eggs.

Control

In Great Britain, where a slaughter policy is enforced when a positive diagnosis is obtained, the stock is valued for compensation, slaughtered, buried or burned and the premises disinfected and left unstocked for a specified time, usually six weeks. Vaccination is not permitted.

It may be of interest to summarise briefly the position of vaccination in Canada and America. Licences are required for importation of vaccines into the different States and Provinces, and certain types only may be approved after tests of sample batches for efficacy and purity. Dead vaccines are not generally favoured but good results have been reported by Mitchell & Walker (1952), and Mitchell, Walker & Moynihan (1952), following the use of virus treated with formalin to which was added an adjuvant consisting of mineral oil and falba. Approximately 90 per cent. of several thousand birds treated were solidly immune six months after vaccination and some degree of protection was passed on to the chicks hatched from eggs laid by vaccinated birds. Good results have also been claimed in Michigan State, but it is said that a similar vaccine used in New Jersey was ineffective.

With regard to live vaccine, virus of varying degrees of virulence are in use, from the relatively innocuous Blacksburg or B1 strain to more potent strains used principally for wing-web administration.

While a stronger and more lasting immunity may be expected from the use of a live vaccine, the benefit may be partially offset by a severe reaction, even in birds of suitable age which appear to be in good health, and the results are sometimes disastrous where any intercurrent disease such as coccidiosis is present or where birds are debilitated. When the "stick" or wing-web method is used birds are usually four to six weeks of age or older. This vaccine produces a mild type of Newcastle disease, but when given intranasally it may be too severe and set up a fatal infection.

A special vaccine is available for intranasal administration for use in laying flocks but here, too, there have been untoward results in the way of increased chick mortality and impaired egg production. Generally speaking immunity after vaccination begins to wane after about two months so that revaccination is necessary. Sometimes a third vaccination is given to ensure that chicks hatched from the eggs of such birds have some degree of parental immunity. This usually lasts up to about 30 days, but when the immunity status of the hen is low, protection is shorter. If chicks are vaccinated while this immunity persists the response may be poor, leading to apparent failure of vaccination. It has been shown by Markham *et al.* (1953) that in the case of chicks or fowls having either active or passive residual immunity, live virus elicits a better serologic response when applied intranasally than by wing-web or intramuscularly. The intraocular route is often preferable for ease of administration, and there is also less risk of the droplet being lost.

Recently what is known as the spray method has become very popular, particularly in Canada. Crawley (1953) reported that since permission was granted in 1952 to use a combined infectious bronchitis and Newcastle disease spray vaccine, over 9,000,000 birds had been vaccinated. Only a single minor outbreak occurred with the Newcastle disease vaccine and none with the infectious bronchitis vaccine. The vaccine is prepared from the Blacksburg or B1 strain (Hitchner & Johnson, 1948) and day-old chicks can be done provided they have some parental immunity for infectious bronchitis. Better results are claimed, however, when the operation is postponed until the chicks are three days of age or even older. One of the chief benefits of this method is the saving of labour. It is estimated that one man can deal with 10,000 chicks in 45 minutes. There is also less risk of introduction of infection from other farms, which is more liable to occur where a large vaccination crew is employed. Moreover, as workers are generally paid at the rate per bird vaccinated, there is a greater potential risk of imperfect results from undue haste when a crew is employed, particularly when the intranasal route is used.

Drawbacks to the spray method are the necessity for having a vaccine of high titre and a uniform droplet size. If the latter is too large the spray will descend too quickly and insufficient may be inhaled, resulting in a proportion of the birds failing to develop an adequate immunity; with the Blacksburg strain there is practically no spread by contact. If the droplet is too small, the chicks may receive too large a dose. A standard type of spray is now available; the operator stands at a fixed distance from the birds and sprays from a stipulated height. The amount of vaccine required is calculated from the floor area rather than the cubic air space. Twenty ml. of vaccine per 1,000 sq. feet has been suggested (Hitchner & Reising, 1953). The risk of human infection by the spray method is a point that is receiving consideration.

It is recognised that there are imperfections associated with all the available vaccines, and

research is directed towards discovering improved products. At all times vaccination should at best be regarded as a means towards the ultimate aim of eradication of the disease. The procedure is costly, and it should be stressed that it should never be regarded as a substitute for good hygiene and husbandry. It is estimated that apart from broilers, of which there are probably 1,000,000,000, an adequate vaccination programme for the U.S.A. would entail dealing with 300,000,000 to 400,000,000 chicks a year (Pomeroy & Brandly, 1953). Even if the operation cost as little as a cent per bird, recalling that two and sometimes three vaccinations are necessary, the colossal cost becomes apparent; and in addition, even if mortality as a result of vaccination were only 2 per cent. that in itself would represent a huge loss.

The procedure to be adopted by any country in attempting to control Newcastle disease will depend to a large extent on the incidence of the disease at the time of recognition. If detected soon after introduction, eradication by the slaughter policy is to be recommended. If successful it will be cheaper in the long run, for once a country adopts vaccination it is likely to be committed to that policy for a long time. Where the disease has been unrecognised and has become widespread there may be no alternative to adopting this method, but the ultimate goal should be eradication.

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Further Experiments on the Treatment of Tick Pyaemia of Lambs with Antibiotics

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IN an earlier field experiment in 1952 (Foggie, 1953) it was shown that the treatment of lambs affected with tick pyaemia by the subcutaneous injection of penicillin at the rate of 20,000 to 30,000 units per day for three or four days, while having little effect on the death rate, had a markedly beneficial effect on surviving lambs. In May, 1953, a further trial was carried out, using a larger dose of penicillin.

The same methods were used as in the previous experiment, except that a daily dose of 100,000 to 200,000 units of penicillin was given in the form of procaine benzyl penicillin.* This product contains 1 part sodium salt to 3 parts procaine salt dispensed as a powder which is dissolved in distilled water prior to injection.

The results at the final assessment prior to the lamb sales are shown in the following table:—

TABLE I

	No. of Lambs	No. of Good Lambs (Tops and Mids)	No. of Poor Lambs (Thirds and Shotts)	No. of Dead Lambs
Treated	58	34 (58%)	16 (28%)	8 (14%)
Untreated	47	16 (34%)	19 (40%)	12 (26%)

* Avloprocil N.A. (I.C.I.)

TABLE II

No. of Lamb	Symptoms	Weight	Erythromycin Dosing Schedule							Condition at marking June 12th
			Days							
			1		2		3		4	
			a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	
		lb.	μg.	μg.	μg.	μg.	μg.	μg.	μg.	
1	Lame one leg	14	200	200	100	200	100	200		Sound
2	,, ,,	16	200	200	100	200	100	200		
3	,, ,,	20		200	200	200	100	200	200	,,
4	,, ,,	18	200	200	100	200	200			,,
5	,, ,,	16	200	200	100	200	100			,,
6	,, ,,	13	300		300		300			,,
7	,, ,,	12	300		300		300			,,
8	,, ,,	18	300		300		300			,,
9	,, ,,	15		200	100	200	100	200	100	Improved
10	,, ,,	15		200	100	200	100	200	100	Still Lame
11	,, ,,	20	400		400		400			,, ,,
12	,, ,,	11	300		300		300			,, ,,
13	,, ,,	20		200	200	200	100	200	100	,, ,,
14	,, ,,	13	100	200	100	200	200			Dead
15	,, ,,	14	300		300		300			,,
16	Lame two legs	9	200		200		200			,,
17	Stiff	14	300		300		200			Sound
18	,,	10	200	100	100	100	100			Dead
19	Lame two legs and torticollis	15	200	200	100	200	200	200	200	,,
20	Paralysed	13	400		300		400			,,

The results relating to surviving lambs are very similar to the 1952 experiment. There is, however, a greater difference in the number of deaths in the treated and untreated groups in the 1953 experiment.

The following clinical observations on the effect of penicillin treatment may be made. In the type of case with an uncomplicated lameness due to abscess formation in a joint, penicillin therapy greatly hastens resolution, and although the majority of these cases recover if untreated, penicillin therapy, by shortening the illness, reduces the check in growth which would otherwise have occurred.

Where obvious joint or muscle lameness has not developed, diagnosis of pyaemia is made when the affected lamb is unable to keep up with the ewe on the hill. These lambs may be in the early bacteraemic stage of the disease or may already have abscesses in the internal organs. The response to penicillin therapy in this type of lamb is variable. In some cases, presumably those in the bacteraemic phase, the lamb may be quite sound and lively in one or two days. Others may die shortly after the start of treatment, showing *post-mortem* evidence of severe internal abscess formation. If the lamb survives for four or five days recovery is usual.

The third type of case is one in which there is involvement of the central nervous system as indicated by posterior paralysis, torticolis, or collapse followed shortly by death. These symptoms may develop in apparently healthy lambs or may occur in either crippled lambs or stiff lambs, irrespective of whether they are being treated or not. Treatment of these cases with penicillin met with no success, even when large doses were administered over periods of up to eight days.

Within recent years erythromycin has been reported as an efficient antibiotic against staphylococcal infections (Hobson, 1954). In human medicine its principal value has been in hospitals where infections with penicillin resistant strains of staphylococci are common (*Brit. Med. J.*, 1952). Although there is no evidence that the staphylococci in tick pyaemia infections are penicillin resistant (Foggie, 1953), it was decided to run a small-scale trial with erythromycin to see if a greater percentage of cures could be obtained.

In preliminary tests, using the impregnated disc technique, strains of staphylococci from pyaemia cases were shown to be sensitive to erythromycin.

Erythromycin is irritant when given by injection, and in human medicine is given orally in pill form. As the antibiotic is destroyed by acid the pills are covered with an acid resisting coat and the drug is not released until the alkaline duodenum is reached. Erythromycin* 100 μg. pills were used in the experiments. As the fate of the drug on entering the rumen was not known it was considered advisable to endeavour to by-pass the rumen by stimulating the closure of the oesophageal groove. To this end 2 or 3 c.c. of 1 per cent. copper sulphate solution was administered immediately before dosing with the erythromycin pills. Each lamb was weighed before treatment and a daily dose of approximately 100 μg. for each 5 lb. of bodyweight was given daily for three days. In half of the lambs treated dosing was carried out morning and evening. In the remainder only one daily dose was given. Treatment of affected lambs was started on May 19th, 1954, and completed on May 23rd, 1954.

The symptoms, weights, dosing schedule and results at marking time (June 12th) are given in Table II.

* "Ilotycin."

In addition to the treated lambs, 11 untreated lambs were identified and observed at the same time. The comparison is somewhat biased against the erythromycin as in each group of lambs those appearing to be most severely affected were selected for treatment. A summary of the results at marking time is given in the following table:—

TABLE III

	No. of Lambs	Sound	Still Affected	Dead
"Ilotycin" treated	20	9 (45%)	5 (25%)	6 (30%)
No treatment	11	3 (27%)	3 (27%)	5 (45%)

Although this small-scale trial gives some indication that erythromycin was hastening recovery in some cases, it is obvious that the results were no better than those already obtained with penicillin. In addition the administration of pills to young lambs by mouth is a more tedious and less accurate method than subcutaneous injection.

Summary

A further trial on the use of penicillin in the treatment of tick pyaemia in lambs confirmed earlier experiments (Foggie, 1953) which showed that this treatment by increasing the rate of recovery allowed more of these cases to reach a marketable condition by August.

A clinical trial on the treatment of 20 cases with erythromycin showed that this antibiotic gave no better results than those obtained with penicillin.

Acknowledgments.—I wish to thank the farmers and shepherds who produced cases for these experiments. I am also indebted to Messrs. I.C.I. Pharmaceuticals for the supply of "Avloprocil N.A." and Messrs. Lilly for the supply of "Ilotycin."

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APPOINTMENTS IN THE N.A.A.S.

Mr. J. A. M. Sutherland, B.SC. (AGRIC.), has been appointed County Agricultural Officer for the East Riding of Yorkshire in succession to Mr. R. B. Ferro, N.D.A., whose appointment as Deputy Provincial Director for the Eastern Province was recently announced; both appointments are effective from November 1st, 1954.

Mr. J. Jones, B.SC. (AGRIC.), N.D.A., has been appointed County Agricultural Officer for Gloucestershire with effect from November 22nd, 1954, in succession to Mr. W. E. Jones, B.SC., who takes up his appointment at Aberystwyth as Deputy Director for Wales on that date.

Husk in Cattle

The following Discussion took place following the reading of a Paper on the subject by Messrs. Jarrett, McIntyre & Urquhart, of the University of Glasgow Veterinary School. The Paper was published in "The Record" of October 30th.

DISCUSSION

Mr. Bruford opened the discussion.

"I am sure that all members of the South Eastern are gratified and honoured that Messrs. Jarrett, McIntyre and Urquhart have come from Glasgow to present their paper to us and I am very pleased to have been asked to open the discussion.

"The writers make it quite clear that this is in the nature of a preliminary report and although they have made some very valuable and pertinent observations they are not yet certain how these observations should be linked. In my view they have contributed a great deal towards the eventual understanding of the husk picture though there remains much work still to be done.

"I must confess that, for many years, I regarded calf pneumonia as a sequel to a coli-bacillosis or as a direct bacterial invasion of the lungs due to lowered resistance consequent upon bad housing and environment. Since reading the contribution to THE VETERINARY RECORD of March 7th, 1953, made by Messrs. Jarrett, McIntyre and Urquhart, and weighing up the story of virus pneumonia in pigs, I have come to the conclusion that in the field we can lend a good deal of support to the cuffing pneumonia and virus theory when it is related to calves that have not been out of doors.

"Mr. Jarrett states that the disease is a serious cause of morbidity; with this view I am not in entire agreement. It is some years now since I carried out a *post-mortem* examination on a calf and found the cause of death to be pneumonia. But in days gone by I did carry out *post-mortem* examinations on such calves and, in my opinion, the pneumonia was a bacterial one, usually *C. pyogenes*, and the history usually led one to believe that the calf had also suffered severely from scour. I do not wish to suggest that we do not now get cases of coughing in calves, we certainly do, and many of these appear to have some degree of pneumonia and often are unthrifty for many months, but death is not a frequent outcome of infection. These calves, however, although stunted, eventually grow up into normal and healthy beasts and, so far as I know, they are no more susceptible to the ravages of parasitic bronchitis than are those more fortunately reared.

"It seems to me that if cuffing pneumonia is to be related to the severe outbreaks of coughing in animals at pasture, one must incriminate a virus, and a virus of great virulence, for it is beyond my comprehension that *D. viviparus* can be the vector; indeed it would be necessary to envisage a virus as virulent as the virus of foot-and-mouth disease, and it would appear that this virus must have some sea-

sonal preference. Virus pneumonia of pigs and calves appears to have much that is common to both, certainly the pathology does not appear to be very different. There is, however, no evidence that virus pneumonia of pigs is caused by anything like so formidable a virus as is the virus of foot-and-mouth disease. I cannot think, therefore, that whatever may be the cause of cuffing pneumonia in calves, the same cause can be blamed for the severe outbreaks of coughing seen in groups of adult animals out in the open.

" Mr. Urquhart tells us that in many cases of parasitic bronchitis, cuffing pneumonia is present, but that in some outdoor cases collapse and cuffing is seen unassociated with lung worm. Several possible explanations are put forward by the authors. In my view, however, sooner or later, *D. viviparus* in some stage or another will be incriminated. In some cases a vast number of mature worms are seen on *post-mortem* examination. It does not seem to me to be unreasonable to suppose that in some animals great damage may be done to lung tissue by the migrating larvae. Autopsy on such an animal might not reveal the presence of the invading parasite unless the most careful examination of the lung tissue were carried out.

" I would very much like to know if, from these cases of cuffing pneumonia in adult cattle, in which no parasites are present, an attempt has been made to set up cuffing pneumonia in calves. I have seen parasitic bronchitis in freshly calved cows this year and no signs of coughing in the calves; and in contrast I have seen coughing in the young calves not at pasture but no sign of coughing in the adult cattle on the farm.

" It is indeed interesting to learn that the writers of this paper have been able to induce the larvae of *D. viviparus* to live throughout the winter and then infect susceptible animals. Why has this been possible in the environs of Glasgow and yet so difficult in other places? In America it is stated that six to seven weeks is the limit. Most veterinary surgeons in practice would agree that repeated attacks occur amongst susceptible animals on some farms. If, however, this happens on every farm it is difficult to see why husk is not much more common than it is and why one suddenly gets a severe outbreak on a farm when, according to the owner, he has never before had husk on the farm and that his animals didn't cough the previous year. One possible explanation is that the management of the pasture has been a lot better than is usual; another explanation could be that the larvae only live during winter in certain climatic conditions, and yet another explanation might be that once cattle have had an attack, however mild, they acquire some level of resistance against further attacks; this latter explanation appears to me to be the most likely.

" If this last explanation is the correct one, then perhaps it is not wise to grow up a herd in the manner suggested in the paper. It might be better to let the calves get a mild attack and acquire a natural resistance.

" I well remember a small herd of Jerseys of about ten cows and their followers becoming very severely affected with husk in the long drought of 1940. These cows had been on the same farm all their lives and were a completely isolated unit and never appeared to have much wrong with them. The owner died and another bought the farm and the animals. The new owner asked me to accompany him to a sale to purchase some more cows. This I did but noticed, when looking at the cows prior to the sale, that there was quite an appreciable amount of coughing going on. To my lasting regret I allowed my client to purchase two cows; this was about the end of May. In August I was asked to see the cows again because they were coughing; on visiting the farm I found several cows dreadfully ill, literally gasping for breath and all were obviously coughing except the two cows purchased in May. They were extremely thin and were practically living on air and earth. Three or four faeces samples taken then were negative and, most unfortunately, no further samples were taken, so that the presence of husk larvae was never positively confirmed. Several of these cows were put into loose boxes which were open to the south and divided by wire gates. In one box next to the cows several calves were kept and not one of these developed a cough. If an infective agent had been the cause of the coughing and pneumonia in the cows, surely the calves in such close proximity would have developed the lung condition.

" The remarkable thing to my mind is that, if the two cows freshly introduced were carrying infective larvae, as I believe they were, how did they manage to infect the old herd so thoroughly, if the larvae are as sluggish as they are made out to be?

" It has been the practice on this farm in the succeeding years to turn out only six months and older calves in the summer, to feed them well and dose them each month with phenothiazine. Although it is true that much ploughing has been done, nevertheless, there has been no further sign of husk in the herd.

" I hope and trust that the excellent work which the Veterinary School of Glasgow is doing will be continued with all the enthusiasm and keeness displayed so far. There appears to be much more to learn about the behaviour of *D. viviparus* under the varying grazing and climatic conditions found in this country. Work in this direction will, I am sure, pay the best dividends and hasten the day when the practising veterinary surgeon can talk to his client on the subject of ' husk ' without fear of contradiction."

Dr. Taylor said that, in the first place, he would like to convey Mr. Hudson's regrets at being unable to attend the meeting on account of urgent work in connection with myxomatosis.

Dr. Taylor then went on to say how very much he had appreciated the opportunity of listening to these three enthusiastic young research workers. In his opinion, this was an example of one of the best kinds of teamwork. It was easy to see with what eagerness and enthusiasm the investigation had been

carried out and he felt sure that a continuation along these lines would result in further success in this research problem.

It was very clear, however, that the problem is a complicated one. In his opinion the outstanding new observation that had been made was the recognition of a new infective agent producing certain lesions in the lungs of cattle. The inferences that he drew were that the investigators had begun by thinking that they had found a new infective agent which might explain the development of symptoms simulating parasitic bronchitis. Latterly, however, they seemed to have changed to the supposition that there was a frequent interaction of parasitic worms and microscopic or ultra-microscopic infective agent, and now we were even hearing of the possibility of some infective agent being introduced by the parasitic worms. It was quite clear that a large amount of work still remained to be done before this complexity could be simplified.

With reference to the duration of infection on pastures and to Mr. Hudson's question as to where the idea originated that the larvae died out during the winter months, Dr. Taylor said he would like to recall the work of Wetzel who, as a result of observations carried out in Germany, concluded that larvae died during the winter time. Observations on this point had also been carried out in the United States, where on particularly dry pastures it had been shown that infection disappeared in as brief a time as two weeks. A number of observations carried out at Weybridge, both on small grass boxes and on small paddocks, had also failed to reveal the existence of infective larvae after the passage of the winter. Dr. Taylor said there could be no doubt that the kind of weather would make considerable difference, and he thought it might be possible that under certain circumstances, some larvae managed to survive.

With reference to the suggestion made by Mr. Urquhart that husk infection might possibly be eradicated from certain well managed farms by observing great care in introducing young cattle to infection-free pastures only, Dr. Taylor said this possibility had also occurred to workers at Weybridge where at the present time endeavours were being made to arrange for a number of trials to be carried out by Veterinary Investigation Officers.

Mr. White said: "I should like to thank the speakers for a most interesting paper and one which provides material for a great deal of thought. Would the speakers tell us under what conditions cuffing pneumonia occurs, that is, whether it is only in poor surroundings or in good conditions as well? From what you say, it appears very common; does that mean that it is present in nearly all herds in the same way that virus pneumonia is very widespread in large piggeries? Do you know if the condition remains latent for the rest of the animal's life?

"If the husk larvae survive the winter in the pasture I should have expected our husk cases to appear earlier than August when it most commonly occurs. I question the soundness in attempting to eradicate husk by keeping the young calves going forward on to pasture which has not been previously grazed by other cattle. It seems to me a dangerous policy to rear animals without any contact with husk worms, as I think we tend to upset the host-parasite relationship and to live in a fool's paradise. I do not think, generally speaking, that husk in the South is so devastating as described by you in Scotland. Our biggest worry is with the rearing herd where the proportion of young susceptible animals in the herd is very high, though even there the death rate is not very high.

"I am sorry not to have heard anything of fog fever. We have this year had experience of a group of Friesian heifers with calves at foot which were grazing the permanent pasture of a water meadow at intervals from June onwards. At the second grazing in July three cases of fog fever occurred, two of which were fatal; when returned still later in August a further three cases occurred within five days, again with two fatal cases. These heifers had husk as yearlings two years earlier. To my mind the condition appears to be allergic in nature, whether or not it is associated with husk."

THE SPEAKERS' REPLY

The speakers thanked the Chairman and members for the privilege of addressing them and said how much they had enjoyed the very lively meeting and the great interest shown in the subject.

In reply to Mr. Bruford, they said that the only reasonable basis for the differentiation of the various types of calf pneumonia, at the moment, was a histological one since such organisms as *C. pyogenes* were very frequently found in pneumonic calf lungs and even in normal ones. Much work remained to be done on the primary aetiological agents.

It was impossible at present to estimate the morbidity of cuffing pneumonia but it was very common in the West and South-West of Scotland; most of the outbreaks which the speakers had been asked to investigate were serious and did not give a true reflection of the disease. On one such farm 26 calves succumbed to cuffing pneumonia within six months. Several lightly affected calves had been purchased and slaughtered on farms where the calves showed mild coughing but were seldom seriously ill; these had proved to be suffering from cuffing pneumonia. The speakers wished to emphasise once more that they were in no position to state that the disease was caused by a virus; in both human and veterinary medicine atypical pneumonias were often thought of as being viral in cause but far too little pathological work had been done on them to make any definite conclusions possible without a great deal of carefully controlled transmission work. Until such time it was difficult to work out the relationship between cuffing pneumonia and parasitic bronchitis.

They had not attempted to transmit cuffing pneumonia using material from adults suffering from that disease alone; they had transmitted it from calves which had never had parasitic bronchitis.

They thought that Mr. Bruford's remarks on epidemiology were very pertinent; sudden severe outbreaks of parasitic bronchitis on farms which had no history of the clinical disease must depend on (a) subclinical infections in previous years; (b) the introduction of an infected animal or manure to the farm; (c) some change in pasture management; or (d) the climatic conditions of the previous winter.

Mr. Bruford and Mr. White had both raised the point of allowing calves to acquire a light lungworm infestation in order to obtain a degree of immunity. Two main points must be borne in mind. (a) While some degree of immunity appeared to exist in the field, too little was known at present about its nature and degree to base any control policy on it and (b) a light infestation with lungworms did not necessarily mean that the animal would show only mild symptoms, since extensive pneumonic lesions were often associated with light lungworm burdens. In addition the difficulty involved in using such a scheme was great and the risk unpredictable.

The speakers thanked Dr. Taylor for his kind remarks and agreed with him about the complexity of the problem. His views on the possible effects of climate on larval survival were very interesting. Further, and larger scale, experiments on longevity were under way at Glasgow this year and they would be published together with meteorological data pertaining to the previous winter; in this way it might be possible to resolve the climatic factors involved in different areas.

In further reply to Mr. White, they stated that cuffing pneumonia had been seen under both good and bad (in the conventional sense) conditions of husbandry; they had little data on its persistence in an animal.

SUMMING-UP BY MR. INGRAM

Mr. J. McC. Ingram, the President, welcomed the speakers and visitors and expressed the gratitude of the members to the University of Glasgow Veterinary School research team on undertaking such a long journey.

The importance of their subject had aroused a great deal of interest as could be seen by the attendance, for the number of visitors tended to equal the number of members.

He stated in answer to a query raised by Mr. Bruford, who was not happy that the disease did occur in this locality as the essayists had emphasised they had had material from Surrey, that the material in question had been sent by him, and he could assure the meeting that it did occur in this area.

When he had first contacted the Glasgow Veterinary School, one of the research team had given him a very good pen picture of the disease, its course and sequelae, which was very accurate. He would like to emphasise that some of the animals which recovered were often very stunted in growth and remained unthrifty.

Again, those which were very badly affected and finally died developed within 72 hours of death, oedema of the dewlap and jowl and, on *post-mortem* examination, there was extensive effusion into the pleural cavity. He encountered one animal which appeared to be recovering very nicely when haemorrhage into the lung occurred.

It had been suggested by one member that only animals in poor condition would be infected; on this point he would agree with the essayists that this is not necessarily so. Most of the animals he had encountered had been in excellent condition, under excellent management, and in fact, the animals were still being suckled up to 8 to 9 months' of age.

In summing-up he congratulated the team on their very excellent paper, the manner in which it had been given and the able way that questions in discussion had been answered.

He could do no better than repeat the words so ably expressed by Dr. Taylor: "That it was most refreshing to come and listen to such an eager and enthusiastic young team tackling a very difficult subject with results that promised much." We were indeed very grateful to them for a most enjoyable meeting.

In Parliament

Tuberculosis Eradication Area, Southern England

MR. G. WILLIAMS asked the Minister of Agriculture if he will include the county of Kent in the tuberculosis eradication area.

MR. NUGENT: It is proposed to develop a tuberculosis eradication area in the south of England during the next four years, and I hope that it will be possible to include Kent in it. The timing will depend largely upon the efforts of farmers and graziers in the county to achieve greater progress in voluntary attestation of herds in the immediate future.

Transit of Horses Order

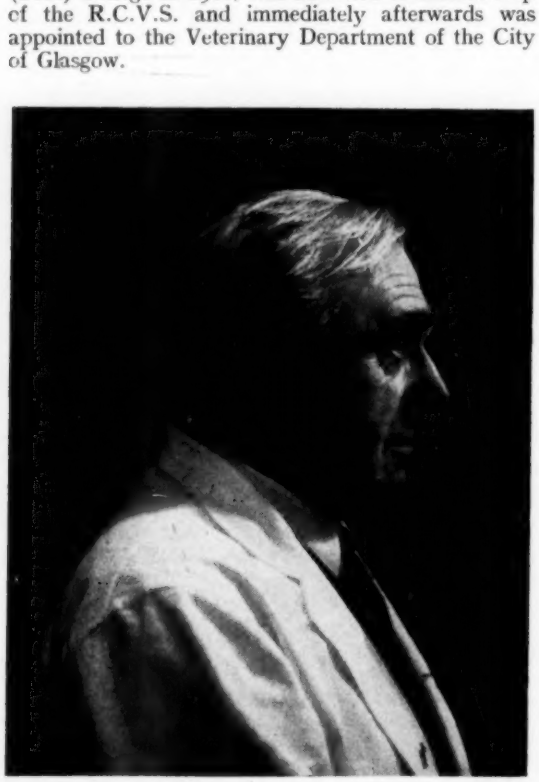
MR. CHAPMAN asked the Minister of Agriculture how many officials, and with what frequency, inspect horses at Maiden Lane Station, London, under the Transit of Horses Order; and what arrangements have been made with British Transport Commission Police regarding enforcement of this order on the railways generally and prosecution in cases of violation.

MR. NUGENT: Maiden Lane Station is visited every weekday by an inspector of the London County Council in connection with the enforcement of the Transit of Horses Order and other Orders under the Diseases of Animals Act and by my veterinary inspectors about twice a month. I understand from my right hon. Friend the Minister of Transport and Civil Aviation that the British Transport Commission police, while not responsible for the enforcement of the Order, are fully instructed on its requirements for the carriage of livestock, including horses. Prosecutions under the Order would normally be instituted by the local authority.

Dr. J. Russell Greig, C.B.E.

AS most readers of THE RECORD know, Dr. Russell Greig has just retired from the Directorship of the Moredun Institute after 24 years of distinguished service. We are happy to publish this outline of his career, for which we are indebted to one of Dr. Greig's colleagues.

John McDougal Russell Greig was born in Leith in 1889. He was educated at the Royal High School of Edinburgh and he frankly admits to an undistinguished and indeed a somewhat disreputable scholastic record. He cannot recall having experienced any desire for scholarship but, on the contrary, vividly remembers "having spent much time and thought in devising ways of avoiding the mental effort of study—and of avoiding also the punishment which this tortuous, roundabout course brought in its train." He had no scientific ambition but from early childhood was fond of animals. This led, in 1906, to his entering the Royal (Dick) Veterinary College and starting on a veterinary career. During his student days he saw practice in widely varied conditions—from the Southern Uplands of Scotland to the Midlands of England; from South London to the Spey—but among his several mentors he has always expressed his particular indebtedness to the late William Lothian of Duns and for this master he developed a deep and abiding affection and esteem. He completed his studies at the Royal (Dick) College in 1911, was admitted to membership of the R.C.V.S. and immediately afterwards was appointed to the Veterinary Department of the City of Glasgow.



Those were the early days of the campaign waged by the veterinary profession with the ultimate object of obtaining "clean" milk free from the menace of tuberculosis. The conditions under which milk was then commonly produced, especially by cows confined within the "wet dairies" of the towns, were—by our modern standards—quite appalling. Although Glasgow, led by its far-seeing and energetic Chief Veterinary Officer, the late A. M. Trotter, was among the foremost in the drive which had, even then, among its objectives the ultimate eradication of bovine tuberculosis from Great Britain, all the efforts of those early days seemed doomed to failure; obstructed and frustrated as they often were by official and public prejudice.

Out of his meagre earnings Greig managed to visit Copenhagen so that he could meet and learn from Bernhard Bang himself his schemes for bovine tuberculosis eradication. His "reception by Bang was" in his own words, "marked by every outward sign of courtesy although it was very clear that this masked an astonishment that one so young and gauche and ignorant, even though highly recommended, should seek him out purely for the purpose of a heart-to-heart talk on our common problem. In short, it was quickly clear that whereas Bang had expected to be presented with a lion he had been met only by a cub. But the very unexpectedness of the situation seemed to appeal to his humour and I was soon aware that he had warmed to me. At the end of it I returned to Scotland with nothing that was of any ready, applicable value but yet I came home with something else—a memory (that was in itself an abiding inspiration) of one who was at once a true scientist, a simple and homely man but above all one who was a great and finely-cultured gentleman."

There is no doubt that this meeting with Bang, then one of the world's leaders in veterinary thought and vision, had a tremendous influence on Greig. It revolutionised his ideas, and extended his whole conception of the future scope and range of veterinary science. Shortly afterwards he left the Public Health Service for State Medicine, being appointed an assistant inspector with the Board of Agriculture where he was principally engaged on executive duties concerned with the control of swine fever and foot-and-mouth disease in the field.

Early in his war service he reported on the value of hypertonic saline solution in the treatment of projectile wounds in the horse. This report, on its publication, resulted in the adoption and application of the principle of "lymph lavage" as a routine procedure throughout all the veterinary hospitals in France and Italy. In 1917 he became associated for a short period with E. A. Watson, Director, Veterinary Research Institute, Hull, Quebec. Watson and Greig determined the cause of the extensive war-conditioned epizootic of ulcerative cellulitis as *B. Preisz-Nocard* and in their researches on epizootic lymphangitis succeeded in cultivating the *Cryptococcus farciminosus* and in confirming its fungal nature.

On demobilisation in 1919 Greig returned to service with the Board of Agriculture and almost immediately found himself concerned in the extensive outbreak of rabies that occurred in South Wales in the spring of that year. What old student does not recall the story of the dramatic diagnosis by Mrs. Greig in the streets of Cardiff—" Rabies, Russell!"

Appointed Professor

On September 1st, 1919, at the early age of 29, he was elected to the Chair of Medicine and Materia Medica in his *Alma Mater*.

During the later stages of the First World War there were very few students in attendance at the veterinary colleges but in 1919 there was a sudden and large influx of ex-servicemen. The Dick College was then suffering acute financial starvation and the staffing and equipment were all too often quite inadequate to meet the new conditions. For seven years the teaching staff of the Department of Medicine was represented by the Professor alone, but then it received an accession of strength—by the appointment of a young lab. boy! Apart from lecturing Greig shared with Professor W. M. Mitchell and Mr. (later Professor) W. C. Miller the conduct of the large and growing College practice. Greig was also responsible for the Leith practice which included several large commercial studs managed under contract. For several years the only means of transport available to him was the tramway car and " Shanks's mare." He believes that his physical fitness was probably due to the long stretches of brisk walking in which he then daily indulged. Somehow or other the Professor usually managed to meet his students at the appointed hour.

From 1924 onwards Greig (in addition to his heavy commitments in teaching, authorship and clinical practice) collaborated with Henry Dryerre in their classic researches into the nature of milk fever. Later, they evolved the method of calcium therapy for the specific treatment of the disease. These researches were outstanding in that they not only introduced a new and rational treatment for the cure of milk fever that quickly became of world-wide application but they marked the adoption in veterinary practice of the principle of " replacement therapy " in the specific treatment of several important metabolic disorders.

Director of Moredun

In 1930 Greig was appointed to the Directorship of Moredun Institute, Animal Diseases Research Association.

The last 30 years have seen remarkable advances in the development of veterinary science and particularly so in respect of diseases of the sheep. In this, as is well-known, Moredun has played a conspicuous part and indeed has been intimately concerned not only in the elucidation of several of the major sheep scourges but also in evolving specific means for their prevention and control. It is generally agreed by veterinarians and flockmasters throughout Scotland that A.D.R.A. has provided our flocks with an effective shield against disease; indeed, it has been authoritatively stated that without this protection sheep husbandry would be quite uneconomic in wide areas of Britain to-day. Because of Greig's own researches, the organisation of those of his associates and, as he is ever ready to recall, because also of the work of his predecessors, Moredun Institute has not only proved of incalculable value to stock husbandry but has also achieved a status of national, indeed of international, celebrity in the scientific sphere.

In addition to numerous papers in scientific journals, Greig has produced the fourth, fifth and sixth editions of Hoare's *Veterinary Therapeutics* and the fourth and fifth English editions of Hutyra and Marek's *Special Pathology*. But as a writer he is perhaps now best known for his *Shepherd's Guide*, published 1951, which has already become a familiar work of reference to several thousands of veterinarians, flockmasters and shepherds throughout the world.

In 1946 Greig received the C.B.E. and in 1952 he was signally honoured by the award of the Neill Gold Medal of the Royal Society of Edinburgh.

★

The above is Russell Greig the Veterinarian. But throughout his life and more so as the years have passed Greig has been known and respected first and foremost as a man. His is indeed a vital personality and a very lovable character. Highly as he is regarded as a veterinarian he is even more highly regarded by all who know him for his other qualities.

It is illustrative of the variety of his interests that he set himself for many years to unearth, and was later able to publish, the first true and very fascinating story of the Scottish ancestry of Edvard Grieg, the great Norwegian composer, who sprang from Greig's own forebears. His historical researches threw new light on the qualities of James Clark as a great revolutionary veterinary pioneer, and he was instrumental in having a memorial plaque placed over Clark's forgotten grave in the Canongate Kirkyard in Edinburgh. And who but Greig would have had the artistry and the inspiration to take up, after the lapse of 150 years, the maud laid down by James Hogg, the Ettrick Shepherd, and so produce the second *Shepherd's Guide*.

His researches into Scottish Vernacular Literature are quite as profound as those in Veterinary Science, though not yet so well appreciated except among the closer circles of his friends. Those researches at any rate are likely to continue and to be intensified and let us hope may yet be properly recorded.

Although in the future Scientific Veterinary Literature may not often carry Greig's name, the wider world is sure to mark him more and more in the ranks of the elder statesmen where his wisdom and humanity will be so warmly welcomed and so valuable.

D. M. C.

University of Bristol

First Conferment of Veterinary Degrees

THE first veterinary degrees of the University of Bristol were conferred on Monday, October 11th. The University of Bristol is young amongst universities as it was only founded in 1909. It is, however, a progressive and vigorous institution under the guidance of its Vice-Chancellor, Sir Philip Morris, C.B.E., who has been a very good friend to veterinary education.

At the ceremony on October 11th, except for three graduates in other faculties, the entire proceedings were devoted to the conferment of the degree of Bachelor of Veterinary Science on the first veterinary graduates of the University.

Special guests included the President of the Royal College of Veterinary Surgeons and Mrs. W. R. Wooldridge, the Registrar and Mrs. W. G. R. Oates, the Assistant Registrar and Mrs. H. M. Anderson, and Mr. C. S. Adams, M.R.C.V.S., representing the Mid-West Division of the B.V.A.

The names of the graduates were: Mr. Raymond Robert Ashdown, Miss Caroline Clark and Miss Joan Barbara Hopwood, all with second-class honours; and Miss Patricia Helen Axten, Miss Mavis Blackwell, Mr. Trevor Bryant Blandford, Mr. Alan John Duncan Campbell, Miss Lilian Dinah France, Mr. Lionel Allerton Hemsley, Mr. Kenneth George Hibitt, Miss Margaret Ann Jaques, Mr. Roger Frank Johnson, Mr. Willie John Jones-Davies, Mr. Bryan William Manktelow, Mr. Harold Pearson, Mr. Roger Valentine Short, Mr. Keith Charles Smith, Mr. Robert John Thomas, and Mr. William Albert Watson.

The Vice-Chancellor then addressed the Congregation. He said that whilst in a sense this was a normal degree Congregation, it was in fact a most exceptional occasion. It was indeed an historic one, and this was emphasised by the presence of the President and the Registrar of the Royal College of Veterinary Surgeons. They were both welcome to the University to which they were, he was glad to say, no strangers.

The Assembly was gathered together for the conferment of the first veterinary degrees of the University. This marked the end of an exciting period of 10 years which had commenced when his revered predecessor in the office of Vice-Chancellor, Dr. Loveday, as Chairman of the Departmental Committee on Veterinary Education, had issued the report of his Committee, which numbered amongst its members Dr. W. R. Wooldridge, who was now present as the President of the Royal College, and which had recommended the establishment of veterinary education in universities. Preparation in the University had commenced at once, and whilst Professor Blakemore might be regarded as the father of the Veterinary School of the University, he had in fact, on his appointment, found a child whose period of gestation was far advanced.

The Vice-Chancellor recalled how Dr. Loveday had laid the foundation stone of the fine buildings of the Veterinary School which were immediately adjacent to the University buildings where the ceremony was being held. Circumstances had been such that the first students who were to-day graduating had been admitted with much of the buildings and equipment required being mere plans and intentions. However, at every stage of their career the necessary buildings and equipment had been ready. This spirit of hope and anticipation was shown by the fact that the Order in Council under Section 1 of the Veterinary Surgeons Act, 1948, recognising the degree of the University and admitting its veterinary graduates to membership of the Royal College of Veterinary Surgeons had not been made until 1951, two years after the first students had been admitted. In 1952 the present beautiful buildings at Langford had been opened and even now work on the final buildings at Langford was about to begin. He asked the students who to-day were being admitted as graduates to remember the great efforts which had been made on their behalf and to carry out into the world with them some of the spirit which had made their graduation to-day possible.

This vigorous growth in the University, said the Vice-Chancellor, was but part of a great movement, not only in the nation, but in the world. Never was there a time when it was more necessary to have a veterinary profession which had received the best facilities in its training. The incorporation of veterinary education into the universities had been in a sense a revolution in the veterinary profession. It was, however, but a means of bringing new vigour to what was an old profession whose parent body, the Royal College of Veterinary Surgeons, would continue to work in close co-operation with the universities.

Admission of New Graduates to the R.C.V.S.

Immediately following the Congregation, and by kind permission of the Vice-Chancellor, a second ceremony was held in the Council Chamber of the University.

The President of the Royal College entered the Council Chamber with the Registrar and Assistant Registrar. He was supported by Professors Blakemore, Ottaway and Messervy. From the rostrum Professor Blakemore introduced the President and reminded the graduates that the holding of the veterinary degree alone did not entitle them to practise their art. It was necessary for them first to be admitted to membership of the Royal College of Veterinary Surgeons. The President of the College was present and would carry out this task.

The President then addressed the new graduates. He expressed his appreciation of the courtesy of the Vice-Chancellor in affording him this opportunity

to hold the admission ceremony within the precincts of the University. It was, he said, a University very familiar to him by reason of his membership of the Loveday Committee, to whose reports the University owed its present Veterinary School. The Royal College of Veterinary Surgeons, to which they were about to be admitted as members, was famous throughout the world. As members they dedicated themselves to serve both humanity and animals. They must carry the enthusiasm and zest of their School into their work and into their profession. They owed a duty both to the community at large and to the veterinary profession of which they were about to become members. The President continued by drawing attention to the fact that as members of the veterinary profession, as distinct from being graduates of a university, their life and work would be governed by a code of ethics, applied not narrowly in the interests of the profession, but on behalf of the community. The Royal College, throughout their professional life would be the parent body of their profession, expecting high standards from them on the one hand, giving them on the other hand, guidance and advice when required. As the Vice-Chancellor said there was a new spirit in veterinary education. The new graduates should be in the vanguard of this new spirit, and should carry that spirit into their future work.

The new graduates were then introduced to the President who shook them by the hand. They subsequently signed the roll of members.

After the ceremony the President presented to Mr. R. V. Short the award of the Aleen Cust Research Scholarship for 1954, and congratulated the recipient not only on his personal honour but on the honour which he brought to his School in attaining this award in the year which had seen the production of the first graduates of the School.

Vice-Chancellor's Luncheon

The Vice-Chancellor entertained the visitors from the Royal College, the Dean of the Faculty of Medicine and other University representatives, as well as representatives of the Veterinary School, to luncheon. At the conclusion he spoke briefly of the historic occasion. The variety of the interests of the persons present showed how much had gone to the creation of the School, and how much goodwill had come to it from other faculties in the University. He welcomed in particular two of the University's guests who were sitting with him at the high table—the President and the Registrar of the Royal College of Veterinary Surgeons.

The President, Dr. W. R. Wooldridge, was no stranger to the University. He had in fact been a welcome visitor before even there had been a conception of a veterinary school; for the School was the product of the report of the Committee of which his distinguished predecessor, Dr. Loveday, had been Chairman, and Dr. Wooldridge a member. It was fitting, therefore, that he should return as President of the Royal College of Veterinary Surgeons to the University at this particular time. Distinguished in many educational and other fields, he came from a family whose name already graced the list of Past Presidents of the College.

The President of the Royal College thanked the Vice-Chancellor for his references to himself both in Congregation and at the Luncheon. Because of his membership of the Loveday Committee it gave him very great personal pleasure to be present on this occasion. He recalled how before the Committee had even decided on its report Professor Tyndall, acting Vice-Chancellor, and the members of the Committee had to inspect the estate at Langford and recommend the University to purchase. The job of seeing this through successfully largely fell to the lot of Mr. H. S. Tanner, the Hon. Treasurer of the University, whom it also gave him great pleasure to see there to-day. Another fact which profoundly influenced the members of the Committee at that time was the extreme enthusiasm shown by all with whom they came into contact at the University, whatever might be their interests, for the establishment of a veterinary school. That same spirit had obviously continued and had resulted in the development of the present young School of which not only they in the University, but the greater world outside could be proud.

The veterinary profession, continued the President, was one which did not receive the same appreciative publicity as that accorded to its sister profession of human medicine, yet their fundamental training was as extensive or even more extensive, with its many species requiring full study. Possibly this variety, however, forced the veterinary student to stop and think despite his over-loaded course—an asset of great value in the exercise subsequently of the profession itself. Nevertheless, despite the growing recognition of the valuable contribution which the veterinary profession had to make it was still not sufficiently appreciated generally. The Vice-Chancellor referred to the active co-operation which the new Veterinary School had received from the various interests in the University. He hoped that this co-operative atmosphere would continue in the University and would soon extend equally to other sections of the community in general. Speaking more specifically of veterinary education in the United Kingdom we must remember that for a century the Council of the Royal College of Veterinary Surgeons applying its knowledge of the breeding of livestock had believed, not without considerable practical success, that veterinary education was best served by a form of pure line breeding. The veterinary profession in effect formed itself into a self-contained herd. Latterly, however, it became appreciated that in-breeding for too long may be disastrous. The Royal College, therefore, welcomed the advent of the universities as participants in the field of veterinary education, appreciating that the advent of this new blood produced a welcome hybrid vigour. The "Bristol cross" was to-day established, and all looked forward to the time when everybody accepted it as fully "proven."

News and Comment

MEDICINE MANUFACTURERS FINED

At Aylesbury magistrates' court last week Messrs. Prophylaxis Ltd., of Gordon Street, Glasgow, were fined £80 and ordered to pay £50 costs on a charge, which was found to be proved, of giving a false trade declaration concerning certain goods. Mr. John Walton, a farmer, had complained to an inspector of weights and measures that cattle medicine supplied to him was incorrectly described. It was not capable of increasing resistance to mastitis, nor of providing immunity against bovine tuberculosis as claimed by the company. After hearing the results of an analysis and receiving the testimony of a number of witnesses, one of whom was the President of the R.C.V.S., the Bench found for the plaintiff.

The company, who pleaded not guilty, stated that theirs was a homoeopathic remedy in which the potency of the drugs was increased by dilution.

CONFERENCE ON SHEEP DISEASES

The Animal Health Division of the Ministry of Agriculture, and the National Agricultural Advisory Service held a joint Conference on Sheep Diseases at the Dobbie Lecture Theatre, U.C.N.W., Bangor, on the evening of October 22nd. The County A.E.C. staffs of Anglesey and Caernarvonshire took part in the organisation, together with the Veterinary Investigation Officer, Bangor. There was a very good attendance, the large lecture hall being full.

The chairman was Professor E. J. Roberts, Professor of Agriculture U.C.N.W., and the speakers were Dr. R. F. Montgomerie and Dr. E. Taylor. Both speakers have had close associations with North Wales in connection with their researches into sheep diseases, and were, therefore, well known to many of those present.

Dr. Montgomerie gave an address on "Anaerobic Diseases of Sheep," and Dr. Taylor on "Parasitic Diseases of Sheep." A well sustained discussion followed, which was opened by Mr. D. Walter Davies, Director of the N.A.A.S. in Wales. In the absence of Mr. W. T. Rowlands, Veterinary Investigation Officer, Bangor, who was indisposed, the Conference was summed up by his deputy, Mr. C. M. Edwards.

ERRATUM

We are asked by the author of "The Piperazine Compound V.19 for the Removal of Ascaris and Oesophagostomum from the Pig," published in our issue of October 2nd, to correct the last sentence of the summary. This should have read: "Toxicity tests show that the L.D. 50 for this compound is approximately 20 times that of sodium fluoride"; not "one 20th" as stated.

COMING EVENTS

Nov. 10th.—Meeting of the Southern Counties Division, B.V.A., at the Red Lion Hotel, Salisbury, 6.30 p.m.

Nov. 10th.—Annual General Meeting of the North Wales Division, B.V.A., at the Glanaber Hotel, Bettwes-y-Coed, 2.15 p.m.

Nov. 11th.—Ordinary General Meeting of the South-Eastern Division, B.V.A., at the Princes Hall, Royal Star Hotel, Maidstone, 2.30 p.m.

Nov. 16th & 17th.—B.V.A. Conference on the Feeding of Farm Livestock for Health and Production in the South Hall, Victoria Halls, Bloomsbury Square, London, W.C.1. Admission by ticket only. Please apply not later than November 8th, on form published with issue of October 9th.

Nov. 18th.—Meeting of the Essex Veterinary Society at the Essex Institute of Agriculture, Writtle, Nr. Chelmsford, Essex, 7.30 p.m.

Nov. 18th.—Victoria Veterinary Benevolent Fund, County of Ayr Ladies Guild Dance, in the Western House, Ayr, 8 p.m. *(For details see page 680).*

Nov. 18th.—General Meeting of the Herts and Beds Division, B.V.A., at the Red Lion Hotel, Luton, 7.30 p.m.

Dec. 3rd.—Annual Dinner and Dance of the North Wales Division, B.V.A., in the Imperial Hotel, Llandudno, 7 p.m.

Jan. 27th.—Annual Dinner-Dance of the North of Scotland Division, B.V.A. (in aid of the Victoria Veterinary Benevolent Fund), in the Northern Hotel, Aberdeen, 7.30 p.m.

R.C.V.S. EXAMINATIONS

Monday, November 8th, 1954. Pharmacology examinations (Practical and Orals commence).

Wednesday, November 10th, 1954. Animal Management Examination tour commences.

Thursday, December 9th, 1954. M.R.C.V.S. Written Examinations.

Friday, December 10th, 1954. M.R.C.V.S. Written Examinations.

Monday, December 13th, 1954. M.R.C.V.S. Practical and Orals commence (Panels "A" and "B").

PERSONAL

Births

BIRKETT.—On October 14th, 1954, at Lordswood Maternity Hospital, Birmingham, to Winifred (*née* Turley), wife of John D. Birkett, M.R.C.V.S., Director of Veterinary Services, Sierra Leone, a daughter, Rachel Sarah—a sister for Judith Guerin.

EARNSHAW.—On October 9th, 1954, in Khartoum, Sudan, to Mary (Mamie), wife of D. G. Earnshaw, B.SC., M.R.C.V.S., a daughter—Rachel Mary.

ROBINSON.—On October 24th, 1954, at St. John's Hospital, Chelmsford, Essex, to Lucy R. Robinson, M.R.C.V.S., wife of Lionel L. Robinson—a daughter.

TOOVEY.—On October 27th, 1954, at the Kimbolton Road Nursing Home, Bedford, to Betty (*née* Walpole), wife of J. A. Toovey, B.SC., M.R.C.V.S., Church House, St. Neots, Hunts—a daughter.

Marriage

PRYCE—WALLINGTON.—The marriage took place on Saturday, October 23rd, 1954 at St. John's Church, Bournemouth, between R. L. Pryce, B.V.SC., M.R.C.V.S., second son of Mr. and Mrs. H. S. Pryce, of Bath, and Patricia Ann Wallington, only daughter of Mr. and Mrs. W. E. Wallington, of Bournemouth.

Ministry of Agriculture Veterinary Field Staff

Mr. C. P. Inglis, M.R.C.V.S., Veterinary Officer at Kendal, retired on October 30th, 1954, and Mr. P. E. Taylor, M.R.C.V.S., Veterinary Officer at Bridgend, resigned on October 31st, 1954.

Mr. M. Macaulay, M.R.C.V.S., Veterinary Officer, has been transferred from Inverness to Cupar, while Mr. R. Moffatt, M.R.C.V.S., Veterinary Officer, has been transferred from Cupar to Kirkwall.

Miss E. V. H. Porter, M.R.C.V.S., Veterinary Officer has been transferred from Carlisle to Ayr.

The Ministry's Divisional Office at Reading has been moved to 17, Bath Road, Reading (Tel. Reading 5034) and the Divisional Office at Newcastle-on-Tyne has been moved to Government Buildings, Kenton Bar, Newcastle-on-Tyne (Tel. Newcastle 25121).

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax:

Ayr. Cranberry Moss Farm, Kilwinning (Oct. 22).; Highfield, Barassie, Troon (Oct. 23).

Ches. Leigh Hall Farm, Little Leigh, Northwich (Oct. 27).

Derbys. Morley House Farm, Morley, Derby (Oct. 26).

Glouc.s. Hill Farm, Woolstone, Cheltenham (Oct. 27).

Leics. Dobb Hall Farm, Little Stretton; Church Farm, Houghton-on-the-Hill, Leicester (Oct. 25); Pear Tree Farm, Ratby, Leicester (Oct. 27).

Notts. Cavendish Lodge, Clipstone, Mansfield (Oct. 28).

Somerset. Walcombe Farm, Wells (Oct. 27).

Wigtown. Palmallet, Wigtown (Oct. 27).

Wilts. Whites Farm, Whiteparish, Salisbury (Oct. 23).

Yorks. Black Hill Farm, Bramley, Grewelthorpe, Ripon (Oct. 26).

Fowl Pest:

Norfolk. Berkley House, and Wayside, Elmham Road, Beetley, Dereham (Oct. 26).

Northants. Girdlestone, Postland Road, Crowland, Peterborough (Oct. 27); Benstead, Postland Road, Crowland, Peterborough (Oct. 28).

Sussex. Merrivale Farm, Slindon, Horsham (Oct. 26).

Swine Fever:

Berks. Piggeries at Park Lane, Twyford, Reading (Oct. 25).

Cambs. Home Farm, Little Thetford, Ely (Oct. 26).

Ches. Pear Tree Farm, Willaston Road, Thornton Hough, Wirral (Oct. 25); Dumbar Piggeries, Little Ees Lane, Ashton-on-Mersey, Sale (Oct. 27).

Denbighs. Rhosnessney Farm, Cefn Road, Abenbury, Wrexham (Oct. 27).

Essex. Fairfield Farm, Wormingford, Colchester (Oct. 25); Fen Farm, Elmstead (Oct. 26).

Hants. Fox Farm, Amport, Andover (Oct. 28).

Hunts. The Yard, Nr. Pumping Station, Pondersbridge, Huntingdon (Oct 25).

Kent. Park House Cottage, Boxley, Maidstone (Oct. 27).

Lancs. Moss House Farm, Bickerstaff, Ormskirk (Oct. 29).

Lincs. The Lodge Farm, Dry Doddington (Oct. 26); Goodwin House, Messingham Road, Yaddlethorpe, Scunthorpe (Oct. 28).

Monmouth. Pwllyplucca Farm, St. Mellons (Oct. 26).

Somerset. No. 8 Smallholding, Lockleaze Lane, Lockleaze, Bristol, 7 (Oct. 27).

Staffs. Leasows Farm, Haughton; Rifleman Inn, Acres Nook, Kidsgrove, Stoke-on-Trent (Oct. 26); Park Farm, Great Gate, Tean, Stoke-on-Trent (Oct. 30).

Suffolk. Holywell House Farm, Holywell Row, Bury St. Edmunds (Oct. 25); Grange Farm, Framlingham, Woodbridge (Oct. 27).

Warwicks. 30, Creynolds Lane, Monkspath, Shirley, Birmingham (Oct. 28).

FEEDING OF FARM ANIMALS FOR HEALTH AND PRODUCTION

As our readers know, the Conference is open to all members of the B.V.A., but a percentage of places has been allotted also for distribution to the animal feeding stuffs trade. Other interested organisations have been invited to send a few representatives each. Admission is by ticket only. Will members *please apply for these immediately*, on the slip to be found at the bottom of the programme published with the October 9th issue of THE VETERINARY RECORD. If this has been mislaid, members are asked to write without delay to the General Secretary stating whether they require tickets for one or both days, and whether they wish luncheon arrangements made on one or both days. The closing date for such applications is November 8th. After this a further allocation of tickets will be made to the animal feedings stuffs trade and there may then be insufficient available for use by B.V.A. members.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

We much regret that owing to pressure on our space a number of interesting letters have had to be held over until next week.

A LEGITIMATE GRIEVANCE

Sir,—I am glad to see that the correspondence on "A Legitimate Grievance" continues. It is only when a sufficient number of the profession take an interest in the matter that we can look forward to a change in the present unjust and dangerous position.

I should like, however, to see more reference to the subject in the daily Press. After Mr. Thomson's forthright remarks at Congress I did see a reference to them in one daily paper. I wish there were more. The general public ought to be informed of the present injustice to private veterinary surgeons. Are copies of THE RECORD containing this correspondence sent to the big daily papers? I hope they are, since surely there is some national paper which would bring this injustice to the notice of the public.

It should be emphasised that the small-animal practitioner is in an absolutely unique position. I know of no other profession or calling in Britain which is quite unprotected against the in-roads of "free" competition.

It is our duty as a profession to see that all animals receive the best veterinary attention, but it is also our duty to ourselves to see that we are enabled to give of our best through reasonable rewards for our services. How can a private practitioner improve his equipment when he may be losing quite a sum daily to the local "free clinic"?

In this part of the country one of the welfare societies is appealing for funds to open still more clinics! Surely something can be done by the R.C.V.S., the B.V.A. and the Government to control this spread of injustice. Unless something is done now private small-animal practice will disappear within a few years.

I appeal to all members of the profession, and more particularly small-animal practitioners, to make their voices heard, including those who have not as yet been seriously affected by the spread of the "free" clinics.

Yours faithfully,

M. WATSON,

11, Anfield Place,
Glasgow, E.1.

October 23rd, 1954.

* * *

Sir,—May I follow up the suggestion contained in Mr. Earnshaw's letter and call for an immediate modification by Council, R.C.V.S. of the regulations (are they one, two or three generations old?), as to "plates, signs, etc." on the professional premises of members.

A decorous increase in the nature and size of such signs might result in the premises of veterinary surgeons being observed by the public during the week; it is well known that members' surgeries and even their private houses shine like beacons to the animal-loving public on Sundays and at night when the clinics are closed for financial reasons!

It is odd that we should be hamstrung by our own elected representatives—if any member of Council has the temerity to introduce this modification as a Motion, the profession as a whole will appreciate the resulting comments and debate.

Yours faithfully,

F. B. HALPIN,

6, Passey Place,
Eltham, S.E.9.

October 24th, 1954.

* * *

Sir,—In response to Mr. Pickering's appeal I feel bound to break into print and fully endorse his and previous remarks in this correspondence. It would be of interest to know how many veterinary surgeons depend mainly on revenue from small-animal practice for their livelihood. I feel that it must represent a fair proportion of the veterinary community. Until some method of uniting these voices is found, the individual can accomplish little on his own.

Is it not time that some official body be appointed to deal with propaganda in the interests of the veterinary profession as a whole? Let the public know that the veterinary surgeon exists and is equally capable, with the charitable clinic—if not more so—of alleviating animal suffering.

What capital is made by these societies in times of a national disaster; and the spate of pictures and articles which continually appear in the newspapers shows that the value of publicity is fully appreciated. They are "big business" and, until the profession shakes off its apathy to these things, will continue to have a clear field, and leave the night and weekend work only to the veterinary surgeons.

Thank you Mr. Pickering for your lead.

Yours faithfully,

A. D. A. ISHERWOOD,

100, South Street,
Tarring

October 28th, 1954.

Advertiser's Announcement

VETERINARY ANTIBIOTIC PRODUCTS
REDUCED IN PRICE

Among Glaxo antibiotics preparations to be reduced in price from November 1st are the following veterinary products:—

VETERINARY MYLIPEN (aqueous suspension of procaine penicillin G, 300,000 units per c.c.).

STREPTOPEN UTERINE TABLETS (500,000 units procaine penicillin and 0.5 gram streptomycin sulphate per tablet).

STREPTOVEX (oral solution of streptomycin sulphate, 8 gm. streptomycin in 8 fluid oz.).